

Abstract

The present invention provides a system and method of using current but incomplete data to prepare an approximated complete image of a patient potentially undergoing radiation therapy. A limited patient image, such as that obtained from a CT scan is fused with a complete image of 5 the same area using image registration techniques. The fused image is converted to sinogram data. This data is compared to sinogram data corresponding to the limited patient image to determine what data exists beyond the scope of the limited sinogram. Any additional data is added to the limited data sinogram to obtain a complete sinogram. This is reconstructed into an image that approximates the complete image that would have been taken at the time the limited image was obtained.

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